IPM Strategies for PTB Management in Utah

Shawn A. Steffan
Utah State University
Dept. of Biology, Logan, UT
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Anarsia lineatella

Peach Twig Borer
Twig Borer Life Cycle
Typical Fruit Damage
2003 Peach Twig Borer Flight Pattern

Nightly Moths Trap-catch/Date

Date

Trapping Results: 2003

- **Total PTB**: 4,863
- **Average per trap**: 413
  - Duration: April-October
- **Ave. per block**: 608
  - Boxelder County: 1,976
  - Utah County: 131

<table>
<thead>
<tr>
<th>Site</th>
<th>Total PTB</th>
<th>Per-Trap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perry</td>
<td>3388</td>
<td>1694</td>
</tr>
<tr>
<td>Willard</td>
<td>564</td>
<td>282</td>
</tr>
<tr>
<td>Kaysville</td>
<td>256</td>
<td>128</td>
</tr>
<tr>
<td>Payson</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Santaquin</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>N. Santaquin</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>Genola</td>
<td>83</td>
<td>41.5</td>
</tr>
<tr>
<td>Lincoln Pt.</td>
<td>402</td>
<td>201</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>4863</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>608</strong></td>
<td><strong>413</strong></td>
</tr>
</tbody>
</table>
Peach Harvest Damage (%)
### 2003 Shoot Strike Counts

<table>
<thead>
<tr>
<th>Orchard Site</th>
<th>Mean Strikes/tree</th>
<th>Harvest Damage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payson Peaches</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Lincoln Pt. Nectarines</td>
<td>0.06</td>
<td>0.50</td>
</tr>
<tr>
<td>Perry Peaches</td>
<td>2.30</td>
<td>26.80</td>
</tr>
<tr>
<td>Willard Peaches</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Kaysville Peaches</td>
<td>0.04</td>
<td>0.12</td>
</tr>
<tr>
<td>Santaquin Peaches</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Genola Peaches</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Key Elements for Management

- Overwinters as a larva in hibernacula
- 3-4 generations/year
- First generation targets succulent shoots.
- 2nd and 3rd generations target fruit.
Degree-Days (DDs) for Each Stage

- Total required for a generation: **1,092.6** DDs
  - Pre-ovipositing Adult: **50.4**
  - Ovipositing Adult: **124.2**
  - Egg: **165.6**
  - Larva: **464.4**
  - Pupa: **288.0**
2003 PTB Flight and DD Accumulations

![Graph showing Degree-Day Totals and Moths/night over time]

- **Degree-Day Totals**: The x-axis represents the dates from 13 May to 9 October. The y-axis represents the degree-day totals, ranging from 0 to 3500.
- **Moths/night**: The x-axis represents the same dates, and the y-axis represents the moth count per night, ranging from 0 to 18.

The graph illustrates the accumulation of degree-days and the corresponding moth activity throughout the specified period.
Percent PTB Egg-hatch

![Graph showing the percent PTB egg-hatch over degree-days for three generations: 1st Gen, 2nd Gen, and 3rd Gen. The x-axis represents degree-days ranging from 0 to 3200, while the y-axis represents the percent egg-hatch ranging from 0 to 100. Each generation has a distinct curve, indicating the progression of egg-hatch over degree-days.]
Egg-hatch in Northern Utah Stones
Egg-hatch Relative to Date

![Graph showing egg-hatch and moths/night over time, with peaks indicating different generations starting on various dates.]
Pest Control Options for Peaches

• **Delayed-dormant sprays**
  - Dormant oil (Volck Oil, SunSpray Ultra-Fine)
  - Esfenvalerate (Asana, Bug-B-Gon, Ortho MAX)

• **Bloomtime sprays**
  - Bt (DiPel, Thuricide, Safer’s B.t. Caterpillar Killer), 2 apps.
  - Copper Sulfate

• **In-season materials**
  - Insecticidal soap, oil, neem, mating disruption, malathion, spinosad, carbaryl, endosulfan, pyrethroids
Potential Strategies for 2004

- **340-640** is likely peak egg-hatch window for 1st generation.

- **1,300-1,650** is likely 2nd generation treatment window.

- Accurate trapping is key to precision in management.

- Average DDs for first moth emergence in 2003:
  - **367 ± 53 DDs**
  - get traps out ~ 250 DDs to ensure reliable biofix.
Integrated Pest Management
Department of Biology, Logan, UT 84322-5305

Estimated Advisories

- **Advisories** - updated Oct. 3rd, 2003
- **Degree-Days, Biofix Dates, & Spray Intervals** - updated Nov. 11th, 2003
- **Fire Blight Model Predictions** - updated May 21st, 2003
- **Previous Advisories** (may take several minutes to download)
- **Salt Lake Home Orchard Web Site**

- **Utah IPM Program**
- **Recent Slide Show Presentations**
- **Tree Fruit Pesticide Registration Updates**
- **Pesticide Labels and MSDSs**
- **Pheromone Mating Disruption Information** - under construction
- **2000 Home Orchard Pest Management Guide**
- **Weather Station Information**
- **Utah Department of Agriculture and Food**
Some Good Links & Resources

- Shawn Steffan, 435-797-0776, steffan@biology.usu.edu
- Diane Alston, 435-797-2516, dianea@biology.usu.edu
- Mike Pace, 435-734-9945, ext. 263
- Code-a-Phone, 801-370-8533 (Utah Co.)
- [www.extension.usu.edu/ipm](http://www.extension.usu.edu/ipm)
- [www.extension.usu.edu/ipm/SlideShowIndex.htm](http://www.extension.usu.edu/ipm/SlideShowIndex.htm)
- [www.ipmtech.com](http://www.ipmtech.com)
- [www.homeharvest.com](http://www.homeharvest.com)
- [www.greatlakesipm.com](http://www.greatlakesipm.com)